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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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09/974,834

10/12/2001

Yoshikazu Nagamura

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02/28/2004

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EXAMINER

SUN, XIUQIN

ART UNIT

PAPER NUMBER

2863

DATE MAILED: 02/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 09/974,834 | Applicant(s) NAGAMURA, YOSHIKAZU | |
| | Examiner Xiuqin Sun | Art Unit 2863 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/29/2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheong et al. (U.S. Pat. No. 6223098) in view of Menaker et al. (U.S. Pat. No. 6303931) and Yoon et al. (U.S. Pat. No. 6589801).

Cheong et al. teach a control system for semiconductor integrated circuit (IC) quality assurance (QA) test process (Figs. 1, 3; col. 2, lines 2-18, 33-43; col. 5, lines 13-30; col. 12, lines 48-63 and col. 13, lines 6-10), comprising: a data processor suite having an inspection item data hold section (Figs. 4-6; col. 2, lines 19-32, lines 37-40, lines 44-62 ; col. 4, lines 41-45; col. 5, lines 39-67 and col. 6, lines 1-57) and a data processing section (col. 2, lines 33-50); the inspection item data hold section holding inspection item graded data which have been graded by determination of reliability for each of the inspection items for a substance to be inspected (Figs. 4-6; col. 2, lines 19-32; col. 4, lines 41-45; col. 5, lines 39-67; col. 6, lines 1-57 and col. 12, lines 48-63); said inspection item graded data are produced as a result of a determination being made by means of taking, as references, an inspection apparatus and an inspection

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method corresponding to the inspection item (Figs. 4-6; col. 2, lines 19-32; col. 4, lines 41-45; col. 5, lines 39-67; col. 6, lines 1-57 and col. 12, lines 48-63); and the data processing section determining general graded data pertaining to the degree of QA of the substance in accordance with an algorithm employed in the data processing section after having received the inspection item graded data from the inspection item data hold section (Figs. 3,7-8, 11; col. 2, lines 33-50; col. 3, lines 51-58; col. 4, lines 55-64; col. 5, lines 39-67; col. 6, lines 58-67; col. 7, lines 1-48 and col. 10, lines 37-67); a display device for displaying the general graded data transported from the data processing section (col. 5, lines 12-19 and col. 12, lines 1-7); an inspection data hold section for holding inspection data pertaining to the substance for each of the inspection items (Figs. 4-6; col. 2, lines 19-32; col. 4, lines 41-45; col. 5, lines 39-67; col. 6, lines 1-57 and col. 12, lines 48-63), and the general graded data are determined in the data processing section on the basis of both the inspection item graded data and the inspection data transported from the inspection data hold section (Figs. 3,7-8, 11; col. 2, lines 33-50; col. 3, lines 51-58; col. 4, lines 55-64; col. 5, lines 39-67; col. 6, lines 58-67; col. 7, lines 1-48 and col. 10, lines 37-67).

Cheong et al. do not mention explicitly that: said general graded data corresponds to weighted inspection item graded data for each substance inspected; said display device for displaying, for an individual semiconductor device that has been inspected, the general graded data transported from the data processing section, thereby indicating the degree of quality assurance of the inspected individual semiconductor device.

Menaker et al. teach a method for determining a profile quality grade of inspected feature, comprising the step of producing general graded data which corresponds to weighted inspection item graded data for each substance inspected (col. 8, lines 25-43 and lines 66-67 and col. 9, lines 1-13).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Menaker et al. in the Cheong invention in order to not only enable a coarse classification of the inspection item data, but also enable a fine classification for grading the degree of quality assurance of the substances under inspection according to their quality (Menaker et al., col. 3, lines 7-14 and lines 58-67 and col. 4, lines 1-10).

Yoon et al. disclose a method of manufacturing semiconductor packages, and teach the step and means of, for an individual IC chip that has been inspected, displaying the general graded data transported from the data processing section, thereby indicating the degree of quality assurance of the inspected individual IC chip (col. 5, lines 65-67; col. 6, lines 1-29, lines 37-54 and lines 64-67; and col. 7, lines 1-40).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Yoon et al. in the Cheong system in order to provide general graded data for evaluating a semiconductor device from the standpoint of production yield and quality assurance in a semiconductor production process (Yoon et al., Abstract; col. 6, lines 64-67 and col. 7, lines 1-40).

3. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheong et al. (U.S. Pat. No. 6223098) in view of Menaker et al. and Yoon et al. as

applied to claims 1-3 above, and further in view of Moore (U.S. Pat. No. 6456729) and Brunner et al. (U.S. Pat. No. 6048651).

Cheong et al., Menaker et al. and Yoon et al. teach the QA control system that includes the subject matter discussed above. The combination of Cheong, Menaker and Yoon does not mention explicitly: said display device is a printer which prints the general graded data directly onto the substance; the substance to be inspected corresponds to a photomask, or photomask indirect material; the substance to be inspected is a photomask, and the display device is constructed so as to provide the general graded data on an area within a pattern region on the photomask in which no pattern is to be formed.

Moore discloses a system and method of marking goods for authentication and tracking purposes, and teaches printing the general graded QA data directly onto a substance (col. 4, lines 33-46; col. 5, lines 23-67; col. 6, lines 1-6 and lines 60-67; col. 7, lines 1-41 and col. 18, lines 24-41).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include Moore printing technique in the combination of Cheong, Menaker and Yoon in order to print and display the QA results directly onto the substance under inspection so that the QA results can be easily tracked and accessed for each individual semiconductor integrated circuit unit (Moore, col. 4, lines 33-46).

Brunner et al. disclose the substance to be inspected is a photomask, and the display device is constructed so as to provide the general graded data on an area within

a pattern region on the photomask in which no pattern is to be formed (col. 2, lines 19-27; col. 3, lines 7-19, lines 44-53 and col. 4, lines 60-67).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teachings of Brunner test photomask in the combination of Cheong, Menaker and Yoon in order to use a test photomask for semiconductor QA process (Brunner, col. 5, lines 27-36), and print and display the QA output on an area within a pattern region on the photomask (Brunner, col. 2, lines 19-27).

Response to Arguments

4. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new ground(s) of rejection.

Claims 1-6 are rejected as new art (U.S. Pat. No. 6303931 to Menaker et al.) has been found to teach the limitation that said general graded data corresponds to weighted inspection item graded data for each substance inspected. For detailed response, please refer to section 2 set forth above in this office action.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information


6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuqin Sun whose telephone number is (571)272-2280. The examiner can normally be reached on 7:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571)272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Xiuqin Sun
Examiner
Art Unit 2863

XS
February 20, 2004



John Barlow
Supervisory Patent Examiner
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